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EXAMINER

STRANGE, AARON N

ART UNIT	PAPER NUMBER
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2153

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 09/843,789	Applicant(s) GARCIA-LUNA-ACEVES ET AL.	
	Examiner Aaron Strange	Art Unit 2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-28 and 30-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-28 and 30-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>09192006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-3,5-28 and 31-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 1 recites the limitation "the type-of-service parameters" in line 8. There is insufficient antecedent basis for this limitation in the claim.

4. With regard to claim 1, the limitation "returning to the client an address of a selected information object repository" is unclear. It is unclear which repository of the "one or more" repositories is being referred to, and if the "selected" repository is the same repository or repositories that were determined in lines 3-11. The Examiner recommends amending the claim to clarify which address(es) is/are being returned and which repository or repositories is/are being referred to.

When clarifying these references to repositories and addresses, Applicant should check the claims which depend from claim 1 to ensure that the references in those claims are also clear. Numerous claims refer to "the selected information object repository" and "the address of the information object repository", while claim 1 contains

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multiple information object repositories and allows for "determining" more than one of them.

5. All claims not individually rejected are rejected by virtue of their dependency from the above claims.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan et al. (US 6,438,652) in view of Zisapel et al. (US 6,249,801).

8. As an initial matter, the Examiner would like to note that the limitation "wherein the type-of-service parameters comprise ... and available bandwidth in said path" fails to impart patentable weight to claim 1. It appears that Applicant may have intended to include a Markush-type group in the claim, but has not followed a proper format. As a result, the recited parameters merely function as examples that impart no patentable weight. The claim should be amended to place the claim into the proper format.

In the interest of expedited prosecution, a reference has been provided that teaches at least one of the examples claimed by Applicant.

9. With regard to claim 1, Jordan shows a system having a plurality of caching servers cooperating to forward client request for object to a least loaded server. Jordan shows:

receiving from a client a request for an information object (col. 5 lines 54-56), determining one or more information object repositories (cache servers) from a plurality of information object repositories to service the request for the information object without regard as to whether the information object is actually stored at the information object repository selected according to a load on the information object repository (load condition) and at least one type-of-service parameter (forwarding frequency or time stamp information) (at least Col 6, Lines 46-49; Col 6, Line 50 to Col 7, Line 7).

Jordan fails to specifically disclose returning to the client an address of a selected information object repository or that the type-of-service parameters are average delay from the information object repositories to the client, average processing delays at the information object repositories, reliability of a path from the information object repositories to the client, or available bandwidth in said path.

Zisapel discloses a similar system for load balancing client requests. Zisapel teaches selecting a destination server for a client request based on type-of-service parameters including average delay from the information object repositories to the client (at least Col 6, Line 50 to Col 7, Line 16) and considering the parameter in combination

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with the load on the server to determine which server to select (at least Col 7, Lines 24-35). Zisapel further discloses returning to the client an address of a selected server for the request (client is notified via DNS resolution or HTTP redirect)(at least Col 7, Lines 53-61). This would have been an advantageous addition to the system disclosed by Jordan since it would have chosen the "closest" server, which is more efficient than the least loaded server, and given the client the address of the server so that the request may be redirected there.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to consider other type-of-service parameters such as average delay from the information repositories to the client and to return an address of the selected repository to the client so the client may receive requested content as fast as possible.

10. With regard to claim 2, Zisapel further discloses mapping an address of the client to an address of the selected information object repository (at least Col 7, Lines 32-35)

11. In referring to claim 3, Jordan shows mapping according to specified performance metrics (Col 6, Lines 58-64).

12. In referring to claim 5, Jordan shows address of information object repository is selected from a number of addresses of information object repositories (load monitor can select from a plurality of owning caches, fig. 2a, 10121 B or A, col. 6 lines 58-64).

13. In referring to claim 6, Jordan shows instructing the selected information object repository to obtain a copy of the information object from a topologically close content server (Col 7, Lines 5-7).

14. In referring to claim 7, Jordan shows determining which of a number of information object repositories should service the request for the information object comprising a direct and redirect cache selection process (col. 6 lines 61-64, direct cache selections or redirected to an owning cache).

15. Claims 8-10, 21-28, 31, and 34-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan and Zisapel in further view of Rune (US 6,304,913).

16. In referring to claim 8, although Jordan and Zisapel shows substantial features of the claimed invention, Jordan does not show *using web server which received the request, to contact a Web router to obtain an address of a topologically close information object repository to the requesting client*. Nonetheless this feature is well known in the art, and would have been an obvious modification to the system disclosed by Jordan and Zisapel as evidenced by Rune.

In an analogous art, Rune shows a system used to selecting a closest server for a plurality of alternative servers. Rune shows:

Using a web server (157a or 156a), which received the request, to contact a Web router (105a) to obtain an address of a topologically close information object repository to the requesting client (fig. 2 210, fig. 7, col. 7 lines 7-25).

Given this feature, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the system shown by Jordan and Zisapel to employ the features shown by Rune in order to improve response times (see Rune col. 1 lines 43-51).

17. In referring to claim 9, Rune shows receiving web server from the web router, an address of the topologically close information object repository (fig. 7, 706, fig. 8, 806).

18. In referring to claim 10, Rune shows returning from web server to the client a URL which contains the address of the topologically close repository (fig. 7 710, fig. 8, 808).

19. In referring to claim 21, Rune shows a local DNS cache selection process returning, from a web server (158b, 158e) which received the request from the client, a uniform resource locator containing a statically configured domain name (col. 4 lines 1-28).

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20. In referring to claim 22, Rune shows local DNS cache selection process further comprises providing, from a DNS server (156e), the statically configured domain name to a Web router (105e) (col. 4 lines 29-37).

21. In referring to claim 23, Rune shows the local DNS cache selection process further comprises providing, from a DNS server (156e), the statically configured domain name to a web router (105e), an address of a topologically close repository (fig. 8, 806).

22. In referring to claim 24, Rune shows the DNS server, the address of the topologically close information object repository to the client (fig. 8, 808).

23. In referring to claim 25, Jordan shows direct cache selection process is combined with redirect cache selection process (col. 7 lines 23-35, fig. 4).

24. In referring to claim 26-28, Jordan shows direct cache selection process is combined with local and remote DNS cache selection process (col. 1 line 8- col. 2 line 3).

25. In referring to claim 31, Jordan shows direct cache selection process is used for information objects that will be immediately loaded without user action (col. 7 lines 23-35).

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26. In referring to claim 34, Rune shows local DNS cache selection process is used for information objects that will be loaded only after some user action (fig. 7, 710, wherein user must access the IP address upon receiving it).

27. In referring to claim 35, Rune shows that determining which of the number of information object repositories should service the request for the information object takes into account the address of the client (closest server is selected (Col 5, Lines 39-42)).

28. In referring to claim 36, Jordan shows that the specified performance metrics comprise load on the object repository (col. 3 lines 30-41).

29. In referring to claim 37, Jordan shows instructing the selected information object repository to obtain a copy of the information object from a topologically close content server (Col 7, Lines 5-7).

30. Claims 11-15 and 30, 32, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan and Zisapel in view of Johnson et al (US 6,205,477).

31. In referring to claim 11, although Jordan and Zisapel shows substantial features of the claimed invention, Jordan and Zisapel do not show a redirect cache selection process comprising contacting a web router to obtain an address of a redirecting Web

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router. Nonetheless this feature is well known in the art, and would have been an obvious modification to the system disclosed by Jordan and Zisapel as shown by Johnson.

In an analogous art Johnson shows a system for redirecting service requests among a plurality of services using portion metrics. Johnson discloses:

A redirect cache selection process comprising of contacting, using a web server (72) which received the client request from the client, a web router (82) to obtain an address of a redirecting web router which will service the request (col. 5 lines 39-53)

Given this feature, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the system disclosed by Jordan and Zisapel, to employ the features shown by Johnson, in order to provide dynamic and transparent scalable traffic load distribution between multiple dispersed servers (see Johnson col. 5 lines 57-61).

32. In referring to claim 12, Johnson shows returning from web server (72) a URL that contains address of redirecting web router (col. 10 lines 26-52, col. 11 lines 13-16).

33. In referring to claim 13, Johnson shows contacting the redirecting web router at the address contained in the URL with the request for the information object (col. 11 lines 18-23).

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34. In referring to claim 14, Johnson shows redirecting from the Web router (82), the client to a topologically close server which will service the request for information (col. 5 lines 44-61).

35. In referring to claim 15, Johnson shows redirecting is accomplished using a HTTP redirect (col. 10 lines 26-30).

36. In referring to claim 30, Johnson shows combining a redirect cache selection process (HTTP redirect mode) with remote and local DNS selection process (col. 6 lines 61- col. 7 line 3).

37. In referring to claim 32 and 33, Johnson shows a redirected cache selection process and a remote DNS cache selection process is used for information objects that will be loaded only after some user action (col. 8 lines 25-28, wherein user must access the IP address after it is received).

38. Claims 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan and Zisapel in view of Chauhan (EP 0959 601).

39. In referring to claim 16, although Jordan and Zisapel show substantial features of the claimed invention including returning from a web server a statically configured domain name (col. 2 lines 32-39), Jordan and Zisapel do not show remote DNS cache selection process with redirector DNS server. Nonetheless this feature is well known in

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the art, and would have been an obvious modification to the system disclosed by Jordan and Zisapel, as evidenced by Chauhan.

In an analogous art, Chauhan shows a system for selecting a server from a plurality of mirrored sites. Chauhan discloses:

A remote cache selection process composes returning to client a statically configured domain name of a redirector DNS server (ONS) (col. 3 line 55- col. 4 line 4).

Given this feature, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the system disclosed by Jordan and Zisapel to employ the feature shown by Chauhan in order to optimize access and find the best route to a destination (see Chauhan col. 3 lines 49-52).

40. In referring to claim 17, Chauhan shows a system wherein remote DNS cache selection process further comprises resolving, at the redirector DNS server (ONS), the statically configured domain name to produce a resolved domain name (col. 4 line 4-13).

41. In referring to claim 18, Chauhan shows a system wherein remote DNS cache selection process further composes providing, from the redirector DNS server (ONS) the resolved domain name to a router (fig. 4 406a/b, col. 9 lines 1-11).

42. In referring to claim 19, Chauhan shows remote DNS cache selection process comprises receiving, at the redirector DNS server and from the Web router, an address of a topologically close site for the client (fig. 5 508, fig. 6 610)

43. In referring to claim 20, Chauhan shows providing from the redirector server the address of the topologically close site to the client (fig. 5 506, fig. 6 618).

Conclusion

44. In the interest of expedited prosecution, the Examiner would like to direct Applicant's attention to some additional references. While not used in the rejection above, these references describe making load balancing decisions based on numerous parameters. The current claims are essentially directed toward making a load balancing decision based on the combination of a load and another parameter. All of the claimed parameters, as well as a large number of other parameters, are known and used in the art to make load balancing decisions.

- a. Logan et al. (US 6,578,066), esp Col 5, Lines 45-60; Col 6, Lines 30-65; Col 9, Lines 60-66; Col 11, Lines 50-67;
- b. Dykes et al. ("An Empirical Evaluation of Client-side Server Selection Algorithms"), esp Sec II-III.

Applicant is encouraged to incorporate subject matter which distinguishes the claims from mere selection of a repository based on some parameters. Given the vast number of parameters known and used in the art, it is unlikely that the application will be

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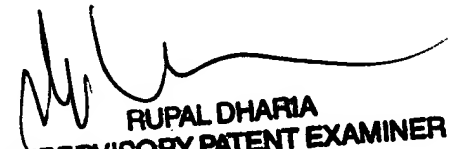
placed into condition for allowance based on the parameters used to make the selection. The Examiner would also like to express willingness to conduct an interview to discuss potential amendments to the claims. If Applicant feels that an interview would expedite prosecution of the present application, Applicant is encouraged to contact the Examiner to schedule one.

45. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron Strange whose telephone number is 571-272-3959. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on 571-272-3949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AS 12/19/2006


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